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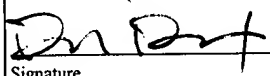
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPELLANT:	HENNING HENNINGSSEN	)	
SERIAL NO.:	09/402,751	)	Group Art No.: 2674
FILED:	October 12, 1999	)	Examiner: Regina Liang
TITLE:	AN APPARATUS AND A METHOD FOR ILLUMINATING A LIGHT-SENSITIVE MEDIUM	)	Conf. No.: 6390
ATTY. DOC. NO:	GRP-0108	)	

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**APPEAL BRIEF UNDER 37 C.F.R. §41.37**

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31 May 2007	
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Daniel Drexler	
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	31 May 2007
Signature	Date

I. THE REAL PARTY IN INTEREST

The real party in interest in this appeal is DICON A/S. Ownership by DICON A/S is established by an assignment document recorded for this application on 12 October 2007 at Reel 010409 and Frame 0535.

## II. RELATED APPEALS AND INTERFERENCES

Neither Appellant, Appellant's legal representative, nor Assignee know of any other prior or pending appeals, interferences or judicial proceedings which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

## III. STATUS OF CLAIMS

Currently, claims 1-22 are pending. All pending claims 1-22 are rejected under 35 U.S.C. § 103(a) as set forth in an Office Action dated 15 August 2006.

## IV. STATUS OF AMENDMENTS

There have been no amendments filed subsequent to receipt of the most recent Office Action dated 15 August 2006.

## V. SUMMARY OF CLAIMED SUBJECT MATTER

A concise explanation of the subject matter defined in each of the independent claims 1 and 20 involved in the appeal is provided below:

### Claim 1

Independent claim 1 recites, "An illumination unit for point illumination of a medium".

The claim recites the illumination unit as comprising "a plurality of light emitters comprised of light guides". With respect to Figure 1, the specification describes an exemplary illumination unit including a lamp 1 optically connected with a plurality of light guides, such as optical fibers 3 which are gathered in a fixture 2. Page 11, lines 9-15.

Claim 1 continues by reciting that the light emitters are "arranged to illuminate an illumination face via a light valve arrangement comprising a plurality of electrically

controlled light valves". The specification describes that the optical fibers 3 are connected at an opposite end to a plurality of subareas or zones 4, each of which comprises a plurality of light valves. Throughout the specification, the light valves are described as being electrically controlled. See, e.g.: page 1, lines 6-12; page 5, lines 22-28; page 12, lines 4-8; etc.

Claim 1 concludes by reciting, "each of at least two of the light emitters being arranged to illuminate a plurality of light valves." That is, the claim requires that at least two light emitters are arranged such that each light emitter illuminates a plurality of light valves. The specification provides that the "light valve arrangement shown in fig. 1 may moreover be constructed on the basis of an array having a very large number of light valves, the total area being divided into a plurality of subareas *which each are illuminated by a light guide 3.*" Page 11, lines 31-35 (emphasis added). The specification continues, "Each subarea comprises a plurality of light valves...The entire subarea of light valves 4 is illuminated by one light guide 3 so arranged that a light beam 10, emitted from the light guide 3, can supply optical energy to all the light valves in the subarea." Page 12, lines 4-13. This concept is clearly shown in Figures 1 and 2.

#### Claim 20

Independent claim 20 recites a "method of point illumination of a medium by means of a plurality of light emitting light guides arranged to illuminate an illumination face via a light valve arrangement".

The U.S. Code of Federal Regulations [37 C.F.R. §41.37(c)(v)] requires that every means plus function limitation under 35 U.S.C. §112, sixth paragraph, which is present in the appealed claims be identified and analyzed. It is known that a claim limitation will invoke 35 U.S.C. §112, sixth paragraph, if it meets the following 3-prong analysis: (A) the claim limitations must use the phrase "means for " or "step for "; (B) the "means for " or "step for " must be modified by functional language; and (C) the phrase "means for " or "step for " must not be modified by sufficient structure, material or acts for achieving the

specified function. MPEP §2181(I).

As set forth above, claim 20 recites “method of point illumination of a medium by means of...” This claim limitation utilizes the term “means” but does not include the phrase “means for” or “step for”. Additionally, the term “means” in claim 20 is not modified by functional language. Furthermore, the term “means” in claim 20 is modified by structural limitations. Thus, for at least these reasons, claim 20 does not include a means plus function nor step plus function limitation requiring specific analysis under 37 C.F.R. §41.37(c)(v).

Appellant notes that where “means for” is not present in claim, a limitation may still be considered a means plus function limitation when it is written as a function or step to be performed and does not recite sufficient structure, material, or acts which would preclude application of 35 U.S.C. §112, sixth paragraph. *Id.*, and *Watts v. XL Systems, Inc.*, 232 F.3d 877, 56 USPQ2d 1836 (Fed. Cir. 2000). In claim 20, there is no function associated with the term “means”. The phrase, “by means of” is simply used to mean “by way of”, “via”, “by”, etc.

The phrase “by means of” is not used in claim 20 in association with a function or a method step and thus does not invoke the provisions of 35 U.S.C. §112, sixth paragraph. Accordingly, a specific analysis thereof under 37 C.F.R. §41.37(c)(v) is not required.

Continuing now with the analysis of claim 20, as mentioned, the claim recites a “method of point illumination of a medium by means of a plurality of light emitting light guides arranged to illuminate an illumination face via a light valve arrangement.” The claim further recites, “said light valve arrangement comprising a plurality of electrically controlled light valves”. As discussed above with respect to claim 1, the specification describes an illumination system configured to provide point illumination of a medium. Particularly, with reference to Figures 1 and 2, the specification describes a plurality of light guides 3 which are arranged to illuminate an illumination face 5 of a medium by way

of electronically controlled light valves 6 disposed in various subareas 4. Page 11, lines 9-35.

Claim 20 continues by reciting the method as “comprising illuminating a plurality of light valves with each of at least two of the light emitters.” This element of Appellant’s invention is substantially discussed above with respect to claim 1. Here, a plurality of light emitters is provided and each of the at least two of the light emitters is illuminating a plurality of the light valves. As discussed, the specification describes an exemplary illumination system where the plurality of light guides 3 each terminate at a subarea 4 of a illumination face 5 where each subarea includes a plurality of light valves such that each light guide 3 illuminates a plurality of light valves. See, e.g.: Page 11, lines 31-35; page 12, lines 4-13; and Figures 1-2.

The above exemplary embodiments taken from the specification are discussed with respect to the aforementioned independent claims by way of example only and are not intended to in any way limit the scope of these claims. The above discussion is provided as required by 37 C.F.R. §41.37(c)(v) and not in an attempt to interpret the claims or limit the scope thereof.

#### VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL

There are six grounds of rejection to be reviewed on appeal: (1) the rejection of claims 1, 3, 4, 8, 14, 15, and 18-20 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,765,934 to Okamori (hereinafter, “Okamori”) in view of U.S. Patent No. 5,053,765 to Sonehara et al. (hereinafter, “Sonehara”); (2) the rejection of claims 2, 5, 6, 21, and 22 under §103(a) as being unpatentable in view of Okamori and Sonehara and in further view of U.S. Patent No. 5,548,349 to Mizuguchi (hereinafter, “Mizuguchi”); (3) the rejection of claim 7 under §103(a) as being unpatentable over Okamori in view of Sonehara and in further view of U.S. Patent No. 4,619,508 to Shibuya; (4) the rejection of claims 9-11 under §103(a) as being unpatentable in view of Okamori and Sonehara and in further view of U.S. Patent No. 5,633,737 to Tanaka (hereinafter, “Tanaka”); (5) the

rejection of claims 12 and 13 under §103(a) as being unpatentable in view of Okamori and Sonehara and in further view of U.S. Patent No. 5,281,960 to Dwyer (hereinafter, “Dwyer”); and (6) the rejection of claims 16 and 17 under §103(a) as being unpatentable in view of Okamori and Sonehara and in further view of U.S. Patent No. 3,553,364 to Lee (hereinafter, “Lee”).

## VII. ARGUMENT

### A. REJECTION OF CLAIMS 1, 3, 4, 8, 14, 15, and 18-20

Claims 1, 3, 4, 8, 14, 15, and 18-20 are rejected under 35 U.S.C. §103(a) as being obvious over Okamori in view of Sonehara.

This rejection is improper because (1) the prior art references do not teach or suggest all of the limitations of the claims; (2) there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine reference teachings; and (3) there is no likelihood of success. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In Re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d 1016, 1023 (Fed. Cir. 1996). These deficiencies are now addressed in turn.

#### *(i) The References Do Not Teach or Suggest All of the Limitations of Claims 1, 3, 4, 8, 14, 15, and 18-20*

Independent claim 1 recites an “illumination unit for point illumination of a medium”. The illumination unit is recited as comprising “a plurality of light emitters comprised of light guides arranged to illuminate an illumination face via a light valve arrangement comprising a plurality of electrically controlled light valves”. Importantly, the claim further recites “*each* of at least two of the light emitters being arranged to illuminate *a plurality* of light valves.” (Emphasis added.) At least this last limitation of claim 1 is not taught or even suggested by the Okamori and/or Sonehara references.

Turning to Okamori, the reference discloses a light source apparatus for use with a projection type display where the apparatus is intended to eliminate non-uniformities in brightness and color and to output an luminous flux having uniform angle distribution. See, e.g.: Abstract; Col. 1, lines 4-7; and Col. 3, lines 33-67. Figure 1 of Okamori provides a light source 1 configured to illuminate a light valve 6 and a projection lens 8. Col. 5, lines 13-34. The light source 1 consists of a lamp 11 that projects light through a lens arrangement 14a, 14b to a light guide 116 which transmits the light through another lens 14c to the light valve 6. *Id.* The light guide 116 is described as consisting of a bundle of a plurality of optical fibers. Col. 6, lines 5-6. Clearly, the arrangement of Figure 1 does not include “each of at least two of the light emitters being arranged to illuminate a plurality of light valves.” Instead, Figure 1 of Okamori discloses a light emitter (i.e., the light guide 116) arranged to illuminate a single light valve 6.

In Figure 2, Okamori discloses a light source arrangement in a second embodiment. This arrangement includes the previously discussed lamp 11 which is configured here to emit light to a light-branching guide 216. Col. 8, lines 33-65. This guide 216 consists of a bundle of optical fibers and separates into several light output sections 216b-216e, each section formed of a smaller bundle of the optical fibers. *Id.* and col. 9, lines 1-30. Each light output section 216b-216e is configured to emit the light from the lamp to an individual light valve 61, 62, 63, 64. Here, as similar to the first embodiment, light emitters 216b-216e each consist of a plurality of optical fibers and each emit light to a single light valve. Thus clearly, this second embodiment of Okamori does not teach or suggest “each of at least two of the light emitters being arranged to illuminate a plurality of light valves”, as required by Appellant’s claim 1. To the contrary, the second embodiment of Okamori concerns a plurality of light emitters (i.e., the light output sections 216b-216e) where each of the emitters illuminates a single light valve 61-64.

With reference to Figures 3 and 5, Okamori teaches additional “branching” light source arrangements similar to that of Figure 2. Additional embodiments are introduced in Figures 7-9, none of which provide all of the limitations of Appellant’s claim 1.

In sum, Okamori concerns arrangements which involve a “one-to-one” relationship between light emitters and light valves. That is, Okamori is concerned with a single light emitter directing light to a single light valve. This is entirely different from the provisions of Appellant’s claim 1 which require that each light emitter illuminate a plurality of light valves.

In the outstanding Office Action, the examiner seems to acknowledge this distinction. The examiner states that Figure 2 of Okamori discloses “a plurality of light emitter (216b-216e) comprises of light guides (light-branching guide is formed of a bundle of optical fibers, col. 8, lines 44-52) arranged to illuminate a light valve arrangement (e.g., light guide 216b is arranged to illuminate light valve 61, light guide 216c is arranged to illuminate light valve 62.)” See, Office Action of 15 August 2006, page 2, item 3. Nowhere does the examiner state that *each* of at least two light emitters illuminates *a plurality* of light valves, as required by Appellant’s claim 1. In response to Appellant’s previous arguments, the examiner states, “Okamori teaches each light guide (216b-216e) is in form of a bundle of fibers, one bundle of fibers (216b) is arranged to illuminate a light valve arrangement (61) wherein each bundle is an emitter, another bundle of fibers 216c is arranged to illuminate a light valve arrangement (62).” *Id.*, at page 8, item 9. As described at length, Appellant’s claim 1 requires, “*each* of at least two of the light emitters being arranged to illuminate *a plurality* of light valves.” (Emphasis added.) Okamori simply does not provide at least two emitters which each illuminate a plurality of light valves. To the contrary, the light valves of Okamori are in a one-to-one relationship with the individual light valves.

Accordingly, Okamori does not teach or suggest all of the limitations of Appellant’s claim 1.

In the present §103(a) rejection, the examiner relies upon the Sonehara reference for teaching “a light valve arrangement comprising a plurality of electrically controlled light valves”. *Id.*, at page 2, item 3. Particularly, the examiner points to Figures 7 and 8 of



Sonehara and states that, “an LCD serves as light shutter (light valve arrangement), each light shutter comprising a plurality of electrodes 706 or 806 corresponds to a plurality of picture elements...the plurality of picture elements correspond to a plurality of electrically controlled light valves as claimed”. *Id.* This is a misinterpretation of Sonehara, as will now be discussed.

Sonehara concerns a light guide type display apparatus intended to reduce the overall length of the optical fibers used, minimize discontinuities between adjacent blocks of the optical fibers, and eliminate luminance unevenness. Col. 1, lines 20-25. Sonehara summarizes the invention as, “a light guide type display apparatus includes an image forming device for forming an image; a display screen for displaying the image and including a plurality of individual display surfaces; and a plurality of optical fibers which couple the image forming device to the display screen and thereby serve as a light guide between the image forming device and display screen...Preferably, a light shutter is used as the image forming device. Each of the optical fibers has an end face which together serve as the display screen.” Col. 1, lines 29-43. Figure 1 shows a light guide display apparatus 100 consisting of a light guide 103 formed of light guide units 106 (optical fibers) each having an incident face and an exit face, the light guide units 106 extend from a light shutter 104 and light source 105 at the incident end to a display screen 110 formed at the exit end. Col. 3, line 64 through col. 4, line 20. The incident faces of the light guide units 106 taken together form an image input end 102 which is coupled to an LCD light shutter 104 proximate a light source 105. *Id.* “Each light guide member of unit 106 has a distal end which is used to form one of blocks 101” of the display screen 110. *Id.*

Figure 2 shows an enlarged view of several of the optical fibers of Figure 1. Figures 3 and 4 show a close-up of the image input end of the light guide units. Figures 5a and 5b show the disposition of the optical fibers.

Figures 6-8 show an enlarged view of the incident, light input end of the optical fibers. Figure 6 shows the plurality of optical fibers disposed against a light shutter 601 at

their respective incident faces 602. Col. 6, lines 3-14.

Figure 7 “is an enlarged view of the junction between a light shutter 700 and a bundle of optical fibers 710...Light shutter 700 is coupled at the image input end of optical fiber bundle 710...” Col. 6, lines 15-25. Here, there is a single light shutter 700 arranged “upstream” from the optical fibers such that light emitted from the source passes through the shutter and then into the optical fibers. As mentioned above and as discussed in detail in Sonehara, it is the opposite “exit” end of the optical fibers which delimit the display screen.

As mentioned, Appellant’s claim 1 recites an “illumination unit for point illumination of a medium comprising a plurality of light emitters comprised of light guides arranged to illuminate an illumination face via a light valve arrangement comprising a plurality of electrically controlled light valves, each of at least two of the light emitters being arranged to illuminate a plurality of light valves.” Clearly, Sonehara does not disclose two light emitters each being arranged to illuminate a plurality of light valves, as required by the claim. To the contrary, Sonehara provides a single LCD light shutter 601, 701 arranged *at an incident face* of a bundle of optical fibers. In Sonehara, the single LCD light shutter is arranged *to illuminate the optical fibers* which then transmit the light to opposite exit faces of the respective fibers which, by composite, form a display surface. This arrangement is entirely contrary to the recitation of the claim and thus does not anticipate nor render obvious claim 1 nor does Sonehara remedy the deficiencies of Okamori discussed above.

The examiner contends that “the plurality of picture elements [of Sonehara] correspond to the plurality of electrically controlled light valves as claimed”. This is incorrect. Sonehara discloses a single LCD light valve 700, 800 disposed in optical communication with a bundle of optical fibers. See, Figures 6-8 and related text. The light valve includes electrodes 706, 806 which correspond to picture elements. Col. 6, lines 23-25. Clearly, the electrodes 706, 806 do not constitute a plurality of electrically controlled

light valves, as recited in claim 1. Still, even if the examiner's interpretation of the electrodes was somehow accurate, the light emitter is not illuminating the electrodes as would be required in order to read on Appellant's claim 1. Instead, the LCD light shutter is illuminating the light emitter. Moreover, only a single light emitter is disclosed whereas the claim requires a plurality.

Thus, Sonehara does not include all of the limitations of claim 1 nor does the reference remedy the deficiencies of Okamori.

For at least these reasons, the Okamori and Sonehara references, taken singularly or in combination, fail to teach or suggest all of the limitations of Appellant's claim 1. Accordingly, the claim is not rendered *prima facie* obvious with respect to Okamori and Sonehara. Claim 1 is not further objected or rejected and thus is allowable to Appellant.

As mentioned at the outset, pending claims 3, 4, 8, 14, 15, 18, 19 are also rejected under 35 U.S.C. §103(a) as being obvious in view of Okamori and Sonehara. These claims variously depend from allowable claim 1 and are thus correspondingly allowable.

Independent claim 20 is also rejected under §103 as being obvious with respect to Okamori and Sonehara. As discussed, claim 20 recites a "method of point illumination of a medium by means of a plurality of light emitting light guides arranged to illuminate an illumination face via a light valve arrangement, said light valve arrangement comprising a plurality of electrically controlled light valves, comprising *illuminating a plurality of light valves with each of at least two of the light emitters.*" (Emphasis added.) As discussed with regard to claim 1, the Okamori and Sonehara references fail to teach or suggest at least the emphasized claim limitation. That is, Okamori teaches a light guides, each formed of a bundle of optical fibers, where each light guide is arranged to illuminate a single light valve. See Figures 1-2 of Okamori, the related text, and the above discussion concerning Appellant's claim 1. Sonehara teaches a light source emitting light to an LCD light shutter which directs the light into a bundle of optical fibers which deliver the light to opposing fiber ends which, taken together, delimit a display surface. See Figures 1-8 of

Sonehara, the related text, and the above discussion concerning Appellant's claim 1. Thus clearly, neither Okamori nor Sonehara, taken singularly or in combination, provide "illuminating a plurality of light valves with each of at least two of the light emitters", as required by claim 20. Accordingly, this claim is not anticipated nor rendered obvious by the Okamori and/or Sonehara references.

Accordingly, for at least these reasons, claims 1, 3, 4, 8, 14, 15, and 18-20 are not rendered prima facie obvious in view of Okamori and Sonehara. Therefore, the outstanding §103 rejections are improper and must be overturned. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In Re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d 1016, 1023 (Fed. Cir. 1996).

*(ii) There is No Suggestion or Motivation to Combine the Relied-Upon References in order to Form the Invention of Claims 1, 3, 4, 8, 14, 15, and 18-20.*

As discussed above, the relied upon Okamori and Sonehara references fail to teach or suggest the limitation of claims 1, 3, 4, 8, 14, 15, and 18-20 concerning each of at least two light emitters being arranged to illuminate a plurality of electrically controlled light valves. Each of the Okamori and Sonehara references do teach a plurality of light shutters or valves (see discussion above), however both references disclose that individual light shutters are disposed in a one-on-one relationship with a respective light emitter. For example, in Okamori, a number of light emitters 216b-216e are disclosed and a number of light valves 61-64 are provided, but each light emitter 216b-216e is disposed in direct communication with only one corresponding light valve 61-64. See, Figure 2 and related text of Okamori, and above discussion. Similarly, Sonehara discloses a single LCD light shutter disposed adjacent to a bundle of optical fibers where light passes through the shutter and into the fibers. See, Figures 6-8 of Sonehara and related text, and also above discussion.

Neither the Okamori nor Sonehara references suggest modifying the disclosed arrangements to include a plurality of electrically controlled light valves arranged to be

illuminated by each of at least two light emitters as required by Appellant's claims 1, 3, 4, 8, 14, 15, and 18-20. In fact, Okamori specifically requires a one to one relationship between its light emitters and light valves. With respect to Figure 2, the reference states, "the light guide is a single-input-multiple-output light guide having one light input section and  $n$  light output sections, *n being equal to the number of light valves.*" Col. 8, lines 33-38, emphasis added. Concerning Figure 3, Okamori states that "the light guide 316 is a multi-branching light guide which includes as many light input sections as there are lamps, a middle portion where the light input sections are combined together, and *as many light output sections as there are light valves.*" Col. 10, lines 6-10, emphasis added. Sonehara teaches a single LCD light shutter preceding a bundle of optical fibers which terminate at opposing exit ends to form a display screen. See, Sonehara Figures 1-8 and related text, and above discussions. Sonehara simply does not contemplate a plurality of light shutters. Moreover, in Sonehara, the light emitter (i.e., the optical fiber bundle) does not illuminate the light shutter; in fact, the reverse occurs. Sonehara is clearly non-analogous to the recitation of claim 1 and the reference does not contain any suggestion or motivation to modify its teaching or the teaching of Okamori to form the invention of Appellant's claims 1, 3, 4, 8, 14, 15, and 18-20.

As discussed above, the examiner holds the position that the electrodes 706, 806 of Sonehara are equivalent to the claimed plurality of electrically controlled light valves. For reasons set forth above, this holding is inaccurate. Nonetheless, even if this analysis was found to be true, still the limitations of claims 1, 3, 4, 8, 14, 15, and 18-20 are not met nor is a suggestion or motivation which would encourage one of skill in the art to modify the teaching of Sonehara and/or Okamori to form these limitations. Particularly, each electrode 706, 806 is disposed in a one-to-one relationship with a corresponding fiber. That is, there exists a one-to-one relationship. Sonehara explicitly teaches against the concept of an electrode illuminating a plurality of fibers. That is, Sonehara seeks to prevent "cross-talk" between adjacent electrode/fiber combinations. See, e.g.: Col. 6, lines 29-33 and lines 63-68; Col. 7, lines 18-36; etc. Further, it is to be noted here again that the

fibers of Sonehara do not illuminate the light shutters nor the electrodes. The reverse is true: the shutters/electrodes illuminate the fibers. Clearly, there is no suggestion or motivation within Sonehara or the related art which would prompt one of skill in the art to modify the teachings of the reference to reach the claimed invention.

For at least these reasons, claims 1, 3, 4, 8, 14, 15, and 18-20 are not *prima facie* obvious in view of Okamori and Sonehara because there is no suggestion or motivation, neither in the references themselves nor in the knowledge generally available to one of ordinary skill in the art, to modify the references to form the claimed invention. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988); *In Re Wilson*, 165 U.S.P.Q. 494, 496 (C.C.P.A. 1970); *Amgen v. Chugai Pharmaceuticals Co.*, 927 U.S.P.Q.2d 1016, 1023 (Fed. Cir. 1996).

*(iii) There is No Likelihood of Success in Forming the Invention of Claims 1, 3, 4, 8, 14, 15, and 18-20 by the Combination Proposed by the Examiner.*

As demonstrated above, the Okamori and Sonehara references, taken singularly or in combination fail to teach or suggest all of the limitations of claims 1, 3, 4, 8, 14, 15, and 18-20. Additionally, as also demonstrated above, there exists no suggestion or motivation, in the references or elsewhere in the art, to modify the references to form the claimed invention. For at least these reasons, one of ordinary skill in the art would not find a likelihood of success in forming the claimed invention by way of the examiner's proposed combination. Accordingly, for this reason, *prima facie* obviousness is not established. Thus the outstanding §103 rejection of claims 1, 3, 4, 8, 14, 15, and 18-20 is improper and may not be maintained. *Id.*

#### B. THE REJECTION OF CLAIMS 2, 5, 6, 21, and 22

Claims 2, 5, 6, 21, and 22 are rejected under 35 U.S.C. §103(a) as being obvious over Okamori and Sonehara in view of Mizuguchi. Claims 2, 5, 6, 21, and 22 variously depend from allowable claims 1 and 20. Accordingly, claims 2, 5, 6, 21, and 22 are

correspondingly allowable. Thus the outstanding §103 rejection is improper and must be overturned.

C. THE REJECTION OF CLAIM 7

Claim 7 is rejected under 35 U.S.C. §103(a) as being obvious over Okamori and Sonehara in view of Shibuya. Claim 7 depends directly from allowable claim 1. Accordingly, claim 7 is correspondingly allowable. Thus the outstanding §103 rejection is improper and must be overturned.

D. THE REJECTION OF CLAIMS 9-11

Claims 9-11 are rejected under 35 U.S.C. §103(a) as being obvious over Okamori and Sonehara in view of Tanaka. Claims 9-11 variously depend from allowable claim 1. Accordingly, claims 9-11 are correspondingly allowable. Thus the outstanding §103 rejection is improper and must be overturned.

E. THE REJECTION OF CLAIMS 12 and 13

Claims 12 and 13 are rejected under 35 U.S.C. §103(a) as being obvious over Okamori and Sonehara in view of Dwyer. Claims 12 and 13 variously depend from allowable claim 1. Accordingly, claims 12 and 13 are correspondingly allowable. Thus the outstanding §103 rejection is improper and must be overturned.

F. THE REJECTION OF CLAIMS 16 and 17

Claims 16 and 17 are rejected under 35 U.S.C. §103(a) as being obvious over Okamori and Sonehara in view of Dwyer. Claims 16 and 17 variously depend from allowable claim 1. Accordingly, claims 16 and 17 are correspondingly allowable. Thus the outstanding §103 rejection is improper and must be overturned.

## VIII. CLAIMS APPENDIX

1. An illumination unit for point illumination of a medium comprising a plurality of light emitters comprised of light guides arranged to illuminate an illumination face via a light valve arrangement comprising a plurality of electrically controlled light valves, each of at least two of the light emitters being arranged to illuminate a plurality of light valves.

2. An illumination unit according to claim 1, further comprising a first lens arrangement comprising at least one micro lens arranged with respect to each light valve so that the light emitted by the light emitters is focused on or in the vicinity of the optical axis of the individual light valves.

3. An illumination unit according to claim 1, further comprising a micro lens arranged between the light valves and the illumination face, so that light transmitted through a light channel of an individual light valve is focused on the illumination face.

4. An illumination unit according to claim 1, wherein the optical light comprises optical fibres.

5. An illumination unit according to claim 1, further comprising at least one light source comprising a short arc gap lamp

6. An illumination unit according to claim 5, wherein the short arc gap lamp comprises light receiving optical light guides or fibres arranged within an angle of  $\pm 75^\circ$  with respect to the equatorial axis of the lamp on a ball face around the lamp, and optically connected to and conduct light to the light emitters.



7. An illumination unit according to claim 1, further comprising at least one light source, wherein said at least one light source comprises a laser source.

8. An illumination unit according to claim 1, wherein each of the light guides is optically connected to a light source arranged to illuminate a plurality of the light valves arranged in a given face shape, and further comprising at least one collimation lens arranged between the light emitter and the face shape so that collimated light is conducted to a first micro lens arrangement associated with the plurality of light valves.

9. An illumination unit according to claim 8, wherein the face shape of the light valves forms one or more hexagons.

10. An illumination unit according to claim 8, wherein the individual light valves are arranged in rows in a transverse direction of the face shape, the light valves being disposed at a given mutual distance, and the rows being mutually offset in the transverse direction.

11. An illumination unit according to claim 8, wherein the rows are arranged such that the projection of all the individual light valves in the transverse direction in the face shape results in a plurality of illumination points at a mutual distance in the transverse direction.

12. An illumination unit according to claim 1, wherein a face shape of the light valves is arranged on one or more illumination heads, each illumination head and the illumination face being adapted to perform a relative movement across an illumination area, and further comprising a control unit for controlling the light valves in dependence on the relative movement between the illumination head and the illumination face.

13. An illumination unit according to claim 12, wherein the illumination head comprises an illumination system movable relative to the illumination face in a single progressing movement transverse to the direction of a rod.

14. An illumination unit according to claim 1, wherein the illumination unit between the light valve arrangement and the illumination face additionally comprises optical means for spreading the light beams emitted by the light channels across the illumination face.

15. An illumination unit according to claim 1, wherein the light valves of the illumination unit are formed by electrooptically based light valves, comprising one of LCD, PDLC, PLZT, FELCD or Kerr cells.

16. An illumination unit according to claim 1, wherein the light valves of the illumination unit are formed by reflection based electromechanical light valves.

17. An illumination unit according to claim 1, wherein the light valves of the illumination unit are formed by transmission based electromechanical light valves.

18. An illumination unit according to claim 1, wherein the light guides of the illumination unit are so arranged with respect to the light valve arrangement that the optical energy fed to a subset of light valves does not differ significantly from each other when the subsets of light valves illuminate adjacent areas or areas close to each other on the illumination face.

19. An illumination unit according to claim 1, wherein light receiving ends of the light guides are gathered in at least one bundle which directly or indirectly receives light from a reflector or a reflector system optically connected to at least one lamp.

20. A method of point illumination of a medium by means of a plurality of light emitting light guides arranged to illuminate an illumination face via a light valve arrangement, said light valve arrangement comprising a plurality of electrically controlled light valves, comprising illuminating a plurality of light valves with each of at least two of the light emitters.

21. A method according to claim 20, including focusing the light emitted by the light emitter on or in the vicinity of the optical axis of the individual light valves via a lens arrangement comprising at least one micro lens arranged with respect to each light valve.

22. A method according to claim 21, including focusing the light transmitted through the light channel of the individual light valve on the illumination face via a second micro lens arrangement arranged between the light valves and the illumination face.

IX. RELATED PROCEEDINGS APPENDIX

None.

X. CONCLUSION

For the reasons cited above, Appellant respectfully submits that the rejections are improper and requests reversal of the outstanding rejections. If there are any additional charges with respect to this Appeal, or otherwise, please charge them to Deposit Account No. 06-1130 maintained by Appellant's attorneys.

Respectfully submitted,

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